
# Fact Checking questionable APR/CWD Claims

**The Concerned Sportsmen of Michigan**
**Jim Sweeney**

For the last year or so there has been a lot of discussion about the idea of enacting APR's in the CWD zone, under the guise of them being beneficial in mitigating the spread and prevalence of CWD.


In this era of "Fake News" it's important to separate fact from speculation. The NRC is charged with managing our resources based on sound science, so it's important to take a close look at what is actual science and what is merely unsupported conjecture.

It's vital that Michigan's CWD response efforts have a sound scientific and biological basis. Just because a claim is repeated over and over, does not make it factual or true. Without any reference to actual published research or verifiable data, claims made are simply speculation. Michigan has done a good job to this point of utilizing science and formulating regulatory policies that are likely to mitigate the spread and prevalence of CWD. We need to continue to utilize science and avoid enacting policy changes which may cause more harm than good, simply because of the perception of popularity among some groups of hunters.

**Claim #1** - Balancing the harvest by increasing the antlerless component will have a positive impact on reducing the spread and prevalence of CWD.


= **LIKELY FALSE**

General population reduction may be effective in mitigating density dependent diseases but has limited efficacy in mitigating frequency dependent diseases. CWD is primarily a frequency dependent disease, although there is some evidence that in later stages of outbreaks (after decades) when environmental contamination has become widespread, that the density dependent component of CWD may become more robust. At that stage, herd reduction may help.

The impact of harvest dynamics and disease are complex. There is a difference between increasing antlerless harvest overall, while the antlered harvest stays static, compared to increasing the antlerless percentage of the harvest, while the antlered percentage decreases and the overall harvest remains static. It's important to make that distinction. In frequency dependent diseases like CWD, where antlered buck prevalence rates are substantially higher than antlerless prevalence rates, decreasing the antlered buck harvest, in the absence of a substantial overall increase in the total harvest, will result in an increase in herd prevalence rates through dilution and likely an increase in geographic spread of CWD.

**Expert opinion -**

Mike Miller, is one of the most pre-eminent CWD Scholars in the Country. In a recent paper, He specifically addresses the concern that balanced harvest approaches (increasing antlerless harvest while decreasing antlered harvest), as some are promoting, may facilitate the persistence of CWD.

"... we encourage jurisdictions to consider how recent trends in cervid management may be contributing to disease emergence. Modeling suggests harvest-based control of CWD may be most effective when focused on male deer (Jennelle et al. 2014, Potapov et al. 2016), perhaps because infection rates among adult male deer tend to be higher than among adult females (Miller et al. 2000, Grear et al 2006, Rees et al. 2012). Conversely, then, harvest strategies intended to increase male:female ratios or adult male age structure could inadvertently facilitate CWD persistence. Given the potential for unintended consequences, we encourage broader critical assessment of how this and other harvest strategies (e.g., season timing, baiting, "quality deer management") may be affecting CWD dynamics." - Miller, M. W., and J. R. Fischer. 2016. **The First Five (or More) Decades of Chronic Wasting Disease: Lessons for the Five Decades to Come.** *Transactions of the North American Wildlife and Natural Resources Conference* 81: *in press*.

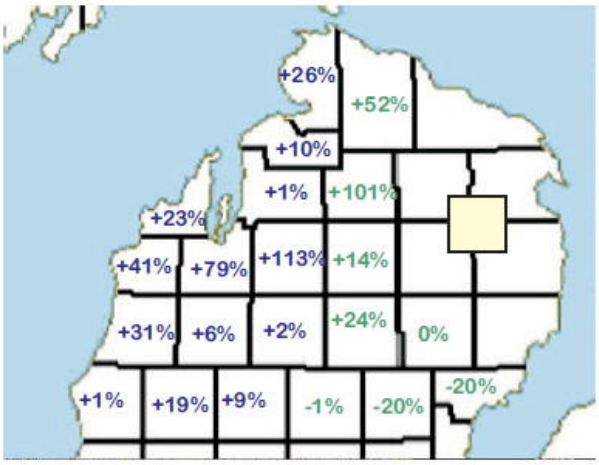
**Claim #2 -** APR's result in an increase in antlerless harvest.

FACT CHECK = **FALSE**

APR's re-direct harvest pressure to antlerless deer resulting in an increase in the *percentage* of antlerless deer in the harvest but there is no evidence that they result in an actual increase in either the number of antlerless deer harvested or the overall harvest. This percentage shift is generally short lived. After the 1st year, the 2.5 male age class expands substantially under APR's, resulting in harvest pressure moving back to antlered bucks. It has been claimed that data from the NW12 counties support the claim that antlerless harvest increases substantially under APR's. That premise is contradicted by examining the data from each NW12 County individually and comparing them to the individual results of a number of non-APR adjacent counties.

This comparison shows that there was a huge degree of variability in changes to antlerless harvest in all of the counties, with or without APR's. Other factors such as antlerless permit availability, population density, weapons allowed, etc., all have an impact on influencing antlerless harvest, attributing changes to a single factor is not supported by any available evidence.

**NLP Antlerless Harvest trends**




Change in Antlerless harvest since APR's were enacted in the NW12

Counties in Blue - APRs
Counties in Green - Non -APR

Comparison of average of NW12 APR period to 3 year pre-APR baseline.
Data compiled from MDNR annual hunter survey reports 2010 - 2017.

2018 - The Concerned Sportsmen of Michigan

**Claim #3 -** Dispersal can result in the geographic spread of CWD outside of core zones.


**= TRUE**

Dispersal is a mechanism in which 1.5 year old deer, known as yearlings, leave their natal range and disperse to other areas, where they establish their adult home ranges. Approx. 15% of female yearlings and around 75% of male yearlings engage in this activity. Males tend to disperse an average of around 5 miles, although this can be influenced by geographic features and landscape type. Female deer tend to disperse farther on average. After dispersing, male deer tend to interact with greater numbers of non-family member deer, whereas female deer tend to join tight knit matriarchal family groups, which are much more socially isolated. As a result, male yearling dispersal poses a much greater threat, in terms of spreading CWD geographically.

**Expert opinions -**

Differences in movement and dispersal between male and female whitetailed deer may also be a significant component of CWD distribution across the landscape, especially in areas where animals do not show seasonal migrations. Between 50% to 80% of yearling males disperse distances of 10 to 30KM, depending on habitat characteristics. (Long et. Al. 2005), whereas less then 20% of females disperse (Rosenberry et. al. 1999) Infected yearling males are therefore more likely to spread CWD into new areas. - Michael R. Hutchings - **Management of Disease in Wild Mammals**

Although yearling males have low chronic wasting disease prevalence rates, they may be infected before dispersal due to variable incubation times. Managers should increase yearling male harvest and consider removing young males in areas of higher forest edge. **White-Tailed Deer Movements in a Chronic Wasting Disease Area in South-Central Wisconsin –** Lesa h. Skuldt et .al, *The Journal of Wildlife Management.*

"In applied ecology, the study of dispersal is fundamental to understanding such problems as the spread of diseases, invasions of exotic species, and escape of genetically modified organisms (Bullock et al. 2002). Dispersal has been suggested as a primary means of spreading disease among populations, and dispersal distance is an important parameter in many mammalian disease spread models" Duane R. Diefenbach, et. al. **Modeling Distribution of Dispersal Distances in Male White-Tailed Deer -** *Journal of Wildlife Management*

**Claim #4 -** Yearling dispersal is irrelevant in regards to disease mitigation efforts because some yearlings disperse prior to hunting season.


**= FALSE**

This claim ignores the fact that prion shedding and CWD exposure to other deer by a dispersing yearling is not a one time exercise. Harvesting yearling bucks prior to dispersal is desired but harvesting one a week or two or even a month after dispersal is still important, as it ends the continued shedding of prions and exposure to other animals. It's no different then sending a sick child to kindergarten. Ideally a parent would keep them at home but if they drop them off and the teacher sends them home a few hours later, the potential for transmission is mitigated. If the teacher allows the child to stay, spreading germs on light switches, door knobs and interacting with other children, the potential for spreading disease is amplified many times.

Yearling dispersal is an important factor that needs to be addressed by any regulations intended to mitigate the spread and prevalence rate of CWD.

**Expert opinions -**

"...yearling males may become infected and incubate the disease before they disperse. Because incubation time is variable, and perhaps lengthy, young male deer are likely to disperse before they shed prions and before they either display clinical symptoms or test positive. Therefore, we suggest that management efforts within the DEZ and surrounding areas include an increase in yearling male harvest." - **White-Tailed Deer Movements in a Chronic Wasting Disease Area in South-Central Wisconsin** - Skuldt, Mathews, Oyer - *Journal of Wildlife Management.*

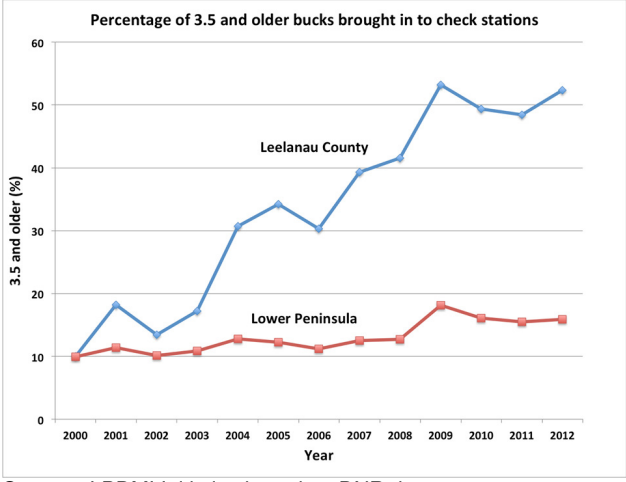
“Support exists for targeting buck fawns and yearling bucks because of the risk of CWD spread from dispersal of yearling bucks in riparian habitats. Density reductions should target entire family groups (does and their fawns) to minimize the probability of disease persistence, and yearling bucks to minimize the probability of disease spread via dispersal.” – Michigan CWD response plan, adopted 2012

"We found that adult males in the middle Missouri River Valley had a high degree of fidelity to their home range and temporary excursions and migratory movements occurred at low rates and distances traveled were short. Such movements would be unlikely to contribute to rapid expansion of infectious diseases. Yearling males, however, dispersed at high rates and were capable of traveling long distances, representing the greatest risk for rapid spread of diseases. Management efforts in riparian habitats could be maximized by targeting male fawns and yearling males for removal ... - Clements et. al. - **Movements of White-Tailed Deer in Riparian Habitat: Implications for Infectious Diseases** - Journal of Wildlife Management

**Claim # 5 -** APR's increase the buck age structure within the herd.

FACT CHECK = **TRUE**

By protecting yearling bucks from harvest, APR's result in greater numbers of bucks advancing to the 2.5 year and older age classes. Older bucks have bigger antlers, which is why APR's are popular among those hunters focused on antler size. This graphic compares the percentage of the harvest made up by the 3.5 ≥ age class of bucks in Leelanau County, which had APR's go into effect in 2002.




Source - LPDMI Initiative based on DNR data

This fact is important in the discussion about APR's and CWD, as adult bucks, 2.5 ≥ have the highest prevalence rates for CWD. APR's result in changes to the herd which facilitate increased yearling dispersal, by preventing 70% of yearling from being legal targets and also by increasing the number of older bucks, with higher prevalence rates, which further contributes to the spread of the disease, as adult bucks have larger home ranges and come into contact with non-family member deer with greater frequency than do does.

**Expert opinion -**

MDC Deer Biologist Jason Sumners explains the reasoning behind Missouri rescinding mandatory APR's in areas where CWD has been found in Missouri.

"According to Sumners, the reason for the regulation change is that management strategies such as antler-point restrictions, which protect yearling males and promote older bucks, have been found to increase prevalence rates and further spread the disease. Sumners explained that yearling and adult male deer have been found to exhibit CWD at much higher rates than yearling and adult females so a reduction in the number of male deer can help reduce the spread of CWD. He added that the movement of young male deer from their birth range in search of territory and mates is also a way of expanding the distribution of CWD." **MDC online** - Missouri Department of Conservation

**Claim # 6** - older age class deer spread the bulk of disease.

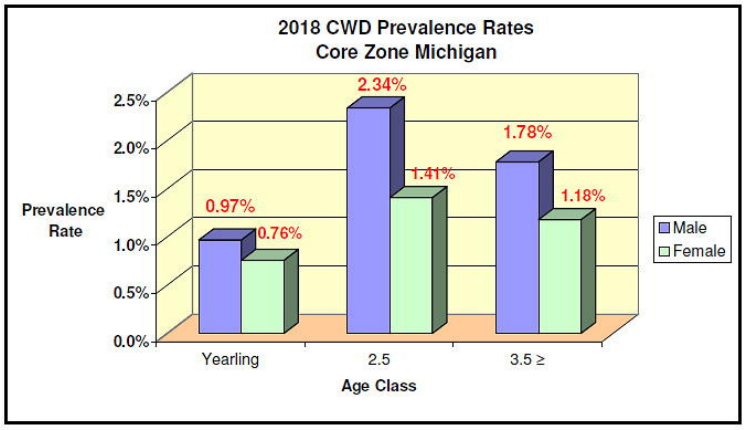
FACT CHECK = **PARTLY TRUE**

This claim is partly true and partly false. The fact is that not all older age class deer are created equal. Adult bucks, 2.5 ≥ have substantially higher prevalence rates than all does and juveniles (yearlings & fawns) of both genders. Adult does have similar prevalence rates to yearling males and higher prevalence rates than juvenile females and male fawns.

From a prevalence standpoint, adult bucks are much more likely to spread disease than are adult does. Yearling bucks are also more likely to spread disease, due to the high percentage of them who engage in dispersal.

The other aspect that needs to be considered is that males of all ages, other than fawns, are much more wide ranging and come into contact with many more non-family member deer than does do. This increases the likelihood of the bulk of disease being spread by males, due to both higher prevalence and increased frequency of contact with uninfected deer.

While there are more older does in the herd, does tend to be socially isolated and have much smaller home ranges than bucks do. As a result, they are less likely to spread CWD to non-family member deer.




## Expert opinion -

"Our results show that the probability of infection increased with age and that adult males were more likely to be infected than adult females. ..... The increase in male prevalence with age is nearly twice the increase found in females. We concluded that CWD is not randomly distributed among deer and that differential transmission among sex and age classes is likely driving the observed patterns in disease prevalence." - **Demographic patterns and harvest vulnerability of chronic wasting disease infected white-tailed deer in Wisconsin.** Daniel A. Greer et. al. The Journal of wildlife management

**Claim # 7** - Habitat improvement and food plots provide a positive benefit in areas where CWD exists.

FACT CHECK = **False**

Habitat improvements, particularly food plots, have a number of impacts on deer biology and behavior but there is no evidence that the results of these factors are beneficial to efforts to reduce CWD.

Artificial food sources, such as baiting sites and food plots, cause deer to aggregate in a manner which breaks down the normal social barriers between non-family deer, increasing the potential for disease transmission. Food plots increase opportunities for disease transmission in two distinct ways, first via the direct sharing of saliva and other bodily fluids, resulting from increased nose to nose contact or from contact with food that has been partially consumed by another deer. Secondly, infected deer feeding in food plots shed prions, which facilitates environmental contamination and the indirect transmission of CWD via concentrations of prions in the dirt. Deer consume soil while feeding and recent research (Pritzker et. al.) indicates that plants can uptake prions from the soil and deposit them in leaves, which are consumed by deer.

By increasing available nutrition, food plots influence recruitment rates and lower winter mortality, thus increasing population densities in areas where disease is present.

Deer aggregating in a winter food plot

I strongly suggest you take a look at this video showing the concentration of deer that occurs in winter food plots in central Michigan, if you have any doubts about the aggregative impact of food plots in disease zones. Just cut and paste this link into your browser, the video is only a minute and half long.

https://www.youtube.com/watch?v=lgeABmqeiUA

**Expert opinions -**

"An important factor in these models is increasing levels of prions in the environment as infection rates increase in the population which results in higher infection pressure,

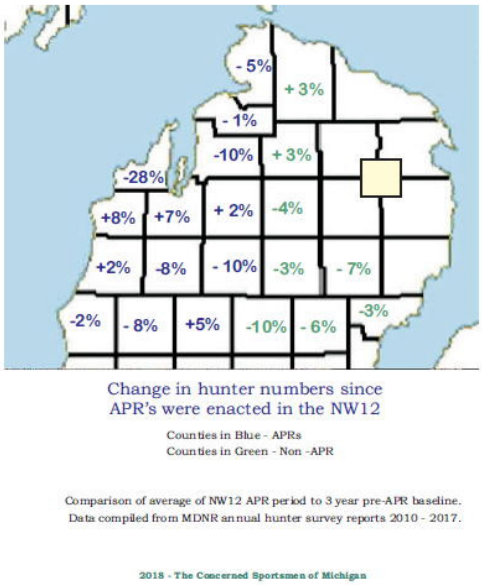
shorter incubation periods and younger animals dying of CWD. Human alteration of habitat causing localized increases in deer numbers and focal points of deer concentration are also likely important. Understanding the relative importance of these various factors influencing the transmission of CWD in order to improve these models is an active area of research in Saskatchewan and elsewhere." - Dr. Trent Bollinger - Director Canadian Cooperative Wildlife Health Center

"..food plots and supplemental plantings can compensate for seasonal fluctuations in food availability and the poor nutritional quality of natural forages. This may help raise the carrying capacity of an area for deer and maintain or improve the nutritional status, productivity, and quality of a deer herd ..... Deer often shift their center of activity to locations where food plots have been established, causing them to become concentrated in a particular area ... - **Establishment of Food Plots for White-tailed Deer in Central and South Florida -** Emma. V. Willcox, Brandon J. Schad, William M. Giuliano, and James F. Selph

**Claim # 8** - APR's result in higher levels of hunter participation and retention.

FACT CHECK = **False**

**NLP Hunter participation trends**




Change in hunter numbers since APR's were enacted in the NW12

Counties in Blue - APRs
Counties in Green - Non -APR

Comparison of average of NW12 APR period to 3 year pre-APR baseline.
Data compiled from MDNR annual hunter survey reports 2010 - 2017.

2018 - The Concerned Sportsmen of Michigan

As this graphic indicates, during the 5 years that Mandatory APR's were in place, 5 of the counties in the NW12 experienced increases Hunter retention and 7 experienced decreases. 2 of the 8 non-APR counties experienced increases, while 6 experienced decreases. Leelanau Co., which has had Mandatory APR's since 2003, experienced the highest level of decrease, during the 5 year period from 2013 - 2017. It is likely that the loss experienced by Leelanau Co. contributed partially to some of the increases which occurred during that period in the adjacent Benzie and Grand Traverse counties.

If APR's are presumed to be the cause of the 8% increase in Benzie, the 7% increase in Grand Traverse and the 5% increase in Osceola counties, then they must also be presumed to be the cause of the 10% decrease in hunter participation in Antrim & Missaukee counties. Conversely, if the lack of Mandatory APR's is to be blamed for the 10% decrease in Clare county, then the lack of APR's must also be presumed to be the cause of the 3% increase in Cheboygan and Otsego Counties.

Clearly, there are a variety of other forces which drive hunter participation, which is why there is substantial variability in the data indicated but it's also abundantly clear that the presence or absence of Mandatory APR's showed no clear impact on whether hunters were retained, in the counties examined during the 5 year period that they were in place in the NW12.